FlyBy Math™ Alignment
Texas Essential Knowledge and Skills (TEKS) for Mathematics
§111.24 Mathematics, Grade 8

b. Knowledge and Skills

(2) Number, operation, and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to:

Knowledge and Skills and Performance Descriptions	***FlyBy Math™* Activities**
(D) use multiplication by a constant factor (unit rate) to represent proportional relationships; for example, the arm span of a gibbon is about 1.4 times its height, a = 1.4h.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

(3) Patterns, relationships, and algebraic thinking.
The student identifies proportional relationships in problem situations and solves problems. The student is expected to:

Knowledge and Skills and Performance Descriptions	***FlyBy Math™* Activities**
(A) compare and contrast proportional and non-proportional relationships; and	--Predict the relative motion of two airplanes on given paths. **--**Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation
(B) estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

(4) Patterns, relationships, and algebraic thinking.
The student makes connections among various representations of a numerical relationship.

Knowledge and Skills and Performance Descriptions	***FlyBy Math™* Activities**
The student is expected to generate a different representation given one representation of data such as a table, graph, equation, or verbal description.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

(5) Patterns, relationships, and algebraic thinking. The student uses graphs, tables, and algebraic representations to make predictions and solve problems. The student is expected to:

Knowledge and Skills and Performance Descriptions	***FlyBy Math™* Activities**
(A) estimate, find, and justify solutions to	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a

application problems using appropriate tables, graphs, and algebraic equations;	schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
(7) Geometry and spatial reasoning. The student uses geometry to model and describe the physical world. The student is expected to:	
Knowledge and Skills and Performance Descriptions (D) locate and name points on a coordinate plane using ordered pairs of rational numbers.	***FlyBy Math™* Activities** --Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.
(14) Underlying processes and mathematical tools. The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:	
Knowledge and Skills and Performance Descriptions (A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;	***FlyBy Math™* Activities** --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;	-- Conduct simulation and measurement for several aircraft conflict problems. -- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.
(C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem;	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Conduct a simulation of each airplane scenario.
(D) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	-- Conduct simulation and measurement for several aircraft conflict problems. --Use formulas and graphs to solve and analyze aircraft conflict problems and to communicate results.
(15) Underlying processes and mathematical tools. The student communicates about Grade 8 mathematics through informal and mathematical language, representations, and models. The student is expected to:	
Knowledge and Skills and Performance Descriptions (A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models;	***FlyBy Math™* Activities** --Predict outcomes and explain results of mathematical models and experiments. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a

	schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
(B) evaluate the effectiveness of different representations to communicate ideas.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. -- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.
(16) Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to:	
Knowledge and Skills and Performance Descriptions	***FlyBy Math™* Activities**
(A) make conjectures from patterns or sets of examples and nonexamples; and	--Predict the relative motion of two airplanes on given paths. --Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation. -- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.
(B) validate his/her conclusions using mathematical properties and relationships.	-- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems. --Use formulas and graphs to solve and analyze aircraft conflict problems and to communicate results.